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ABSTRACT

The concept of "competency mapping" emerged from a study of the state-of-the-art of adult education needs assessment to provide the basis for development of a model for states to adopt or adapt to fulfill requirements of the 1978 amendments to the Adult Education Act. Need was defined as a lack of functional competency and those problems encountered by adults who want to finish high school but have been unable to do so. It was further determined that functional competency at the Adult Performance Level (APL) 1 was predictable with efficiency by combining data on adult functional competency level and on certain demographic characteristics available through the United States Census Public Use Tapes. Numbers of persons in the APL 1 population could be predicted on a state-by-state, county-by-county, or Standard Metropolitan Statistical area basis. The competency maps developed would identify with reasonable accuracy specific need areas within each state where indepth problem-specific needs assessments could then follow. Discrepancies between predicted needs and areas where funds had been allocated and spent could be identified using a disbursement pattern for Federal funds. Data errors and subjective factors idiosyncratic to a state or region appeared to be inadequacies of competency mapping. (YLB)

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COMPETENCY MAPPING: A NEW CONCEPT IN ABE NEEDS ASSESSMENT

by Carlene L. Turman, Ed.D.

For the first time in the history of Federal support for adult education, the Congress has said to states: "You will be accountable for where the Federal money goes and what it is used for!" The 1978 amendments to the Adult Education Act require that states

> identify the needs of the population of the state for services authorized under this title, the other resources in the state available to meet those needs, and the goals the state will seek to achieve in meeting those needs over the period covered by the (state) plan.

At first glance, this does not seem to be such an unrealistic request. Certainly states know the "needs" of their adult populations. But this new Federal requirement takes on more awesome proportions when "need," "want," and "preference" are laid side by side. I may need to learn how to play tennis because I don't know how, but I don't particularly want to learn: my preference may be to learn racquetball instead. If you ask me about learning to play tennis, my answers will be very different, depending on the way you ask the question. The Congress, in its infinite wisdom, has not made the differentiation.

If I survey the adult population of a state or region, asking people what they want in terms of education (basic, secondary or general), should those wants direct my program? Will I get similar answers if I ask people to identify their learning needs? What if they don't know

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what they want or need? What kind of unfulfillable expectations will be raised by asking the public either what they need or want, particularly in light of the fact that my program is already full, with people waiting to get in and no additional money in sight?

I recently conducted a review of needs assessment research and practice for the U.S. Office of Education which revealed that these questions have not really been answered. Want and preference are generally ignored, and need is used in the context of "needs assessment" as a process of identifying, understanding, and responding to some deficiency.

To compound the confusion, there is no theory base for "needs assessment" and no single or preferred approach to conducting needs assessments. Need does not refer to anything specific, but rather to something which does not exist -- it is an empty term, without conceptual boundaries.

A few states have initiated assessments using a variety of strategies and instruments; many states have at least one type of assessment survey in place (surveys of current ABE student's wants or teachers' and administrators' perceptions of student needs seem to be the most popular--for the obvious reason that they require the least resources to conduct). A number of states are still struggling with a starting point. The national picture of adult education needs assessment is a patchwork of various levels of effort from the most primary planning stages to California's sophisticated multi-faceted design. A discouraging scene? Not entirely.

In October, 1978 I was asked by the U.S. Office of Education to review the state-of-the-art of adult education needs assessment and develop a model which states might adopt or adapt to fulfill the requirements of the new needs assessment language in the 1978 amendments. From this study emerged the concept of "competency mapping."

After reviewing the needs assessment efforts of some thirty states, the available research on needs assessment in health and social services fields as well as education, and talking to a number of adult educators, the need to operationally define "need" clearly became my first priority. Because I was only concerned with the development of a model which could be used to implement the new Adult Education Act language, an operational definition was simple: I defined <u>needs</u> in terms of the statutory language of the Adult Education Act.

- Needs can be identified when persons do not have the basic skills necessary to function in society or to secure the means to training that will enable them to become more employable, productive, and responsible citizens--i.e., they are functionally incompetent.
- Needs can be identified as the barriers which must be overcome by persons who desire to continue their education to at least the level of completion of secondary school and have not been able to do so.

I defined <u>need</u> as a lack of functional competency, and as those problems encountered by adults who want to finish high school but have

not been able to do so.

Once I had arrived at these definitions which do differentiate between need and want, it became apparent that a unique set of factors existed in this situation, and an assessment of these factors ultimately led to what I have come to call "competency mapping." The factors were:

1. Needs assessments for purposes of program planning and resource allocation of Federal adult education funds are required by Federal law for the first time.
2. Many states do not have the resources necessary to carry out even minimal assessment efforts within the required time-frame--i.e., within this fiscal year.
3. National data was available on adult functional competency levels. The U.S. Office of Education had, in fact, a considerable investment in research conducted since 1972 at the University of Texas by the Adult Performance Level Project which identified levels of functional competency for the American adult population.
4. National data is also available on certain demographic characteristics of the population through the U.S. Census Public Use Tapes.
5. If these two sets of data could be combined, it might not be necessary for each state to engage in initial assessments of functional competency. It might be possible to produce estimates of numbers in the population in the APL 1 catagory (those persons with less than the minimal competencies needed to

survive in American society today) on a state-by-state, county-by-county, or Congressional District level.

A series of questions was posed to the APL researchers: Do the demographic data really exist? Are they compatible with the APL data base? Are they available? Can these data be used to predict functional competency at the APL 1 with any efficiency? The answers were yes!

Dr. Norveil Northcutt, formerly Director of the University of Texas APL Project and now with the Southwest Education Development Laboratory, Austin, Texas, determined the predictive efficiency of the demographic information available in the APL data base using a multiple regression procedure. A "Power Index" which measures the relative predictive worth of each demographic variable was computed on the basis of the multiple regression analysis. Dr. Northcutt determined that the first five variables used in the APL data base (last grade completed, ethnicity, family income, age, and employment status) account for 82% of the total explained variance, and further, that these five variables are available in the 15% Public Use Census sample.

What this can mean to the states is simple: combining these two sets of data, Dr. Northcutt can predict numbers of persons in the APL 1 population on a state-by-state, county-by-county, or Standard Metropolitan Statistical area basis. The development of these competency maps would take from two to three months. Should the U.S. Office of Education decide to sponsor the development of these maps for the states, each state director of adult education might receive a numerical tally, by county, of APL 1 persons in his or her state.

The competency maps would identify with a reasonable level of accuracy specific need areas within each state where in-depth problem-specific needs assessments could then take place using some type of participatory process (and eliminating such efforts in areas where they are not required). The competency maps can provide states with an identification of persons most in need. Overlaying a statewide competency map with the disbursement pattern for Federal funds for the current fiscal year (a direct indicator of a state's current priorities) can identify discrepancies between predicted needs and areas where the funds have actually been allocated and spent, providing states with immediate targets for in-depth assessment. States would be able to check out areas of strength (where needs appear to be great and funds adequately targeted), and areas which may need improvement (where needs are predicted to be great but allocated funds have been inadequate, or needs appear to be less, but funds are unusually ample).

Using demographic data to predict or estimate competency levels is not without error. The error is due to two sources: the inability of the demographic variables to completely predict or estimate APL levels, and the inherent sampling error in the Census Public Use Sample. When the cost of individual statewide needs assessments of any kind as a first step in complying with the Federal law is considered, however, the error in competency mapping as a first step would appear to be within tolerable limits.

One further disclaimer must also be made for competency mapping. There are subjective factors idiosyncratic to a state or

region which may not appear in the competency map. Resource allocation must recognize cultural issues and geographic differences which cause problems in such areas as delivery system costs. The competency map-resource allocation comparison must be considered only as a decision-making tool for each state, and not a Federal compliance measure.

In spite of these inadequacies, competency mapping as an initial data base for adult education needs assessment would be, for a number of states, a useful and economic decision-making instrument for directing the in-depth assessments states must ultimately conduct under the law to set goals for use of their Federal adult education dollars. The maps would pinpoint where further assessments must take place, eliminating the need for costly statewide in-depth assessment activities. Competency mapping may well be an idea whose time has come. The primary question now becomes the mechanism or process to move the idea from concept to reality.

Table 1

Hypothetical Competency Map - Smith County
(All numbers reflect APL level 1 only)
April 1, 1979

Age	Last Grade Completed	Ethnicity	Family Income	Employment Status
16 - 25				
26 - 35				
36 - 50				
51 - 65				
Over 65				

For each block in the matrix above, raw scores (numbers) can be estimated. It may be more useful, however, to break the larger table up as shown in Table 2, enabling the computation of percentages within each cell.

Table 2

Hypothetical Competency Map - Smith County
Showing Comparison of Age Against Last Grade Completed

Age	Last Grade Completed 4	6	8	10	11	Total Frequency
16 - 25	Row % Column % Total % (comparison with national data) Frequency					
26 - 35						
36 - 50						
51 - 65						
Over 65						

Total Frequency